Active elements

1 Introduction

This document contains a description of active elements implemented in *LM-Report Asistent.* There is also a list of visualization (for active elements which have some visualization implemented) with description of visualization setting items.
Described set of active elements consists just of active elements implemented in basic version 1.0. Program architecture allows to ad new active elements support into program.

Each active element description contains list of all attributes and plugins, which support given active element. Names of attributes are in English language, although there is possibility of output language choice.

Described attributes of active elements correspond to items, which you can find in Attribute Link Table setting dialog of particular active element type. Some of these attributes are common for all occurrences of given active element type. These common attributes are also displayed as columns in Filters dialog. Some attributes may be varied in each occurrence (i.e. parameters of each particular quantifier). These attributes are marked with blue color.

Attributes of active elements which represent LISp-Miner quantifiers are marked with green color. You can find more information about meaning of particular quantifiers in LISp-Miner documentation. Quantifiers of SD procedures have suffix (1 or 2), which determines the set which quantifier belongs to (1=First set, 2=Second set).

2 Common visualizations options for hypotheses

There are several visualizations implemented for active elements – mostly active elements with the type "hypothesis". Visualizations may contain some settable parameters. User can set these parameters via visualizations-setting dialog.

There are three basic kinds of visualizations for hypotheses: *Header And Cedents* (generates a chapter with description of Boolean and categorical cedents of hypothesis), *Contingency Table* (generates a contingency table of hypothesis) and *Graph.*

Some settings are individual for each kind of hypothesis, but the most of them are common. In the following paragraphs are described options, which are common for most of visualizations.

- ***Header And Cedents***

- *Title (hearer)* –
  - The name of the included chapter
  - String value, editable
- *Show Antecedent* –
  - Setting whether to show antecedent
  - Enum value (yes/no), default "yes"
- Show Succedent –
  - Setting whether to show succedent
  - Enum value (yes/no), default "yes"
- Show Condition –
  - Setting whether to show condition
  - Enum value (yes/no), default "yes"

- ***Contingency Table***

- *Show sum of values (for absolute values only)* –
  - Setting whether to show row and column sums
  - Enum value (yes/no), default "no"
- *Red-highlight data fields* –
  - Setting whether to red-highlight table data fields (the bigger value – the darker red color)
  - Enum value (yes/no), default "no"
- *Color-highlight border fields* –
  - Setting whether to color-highlight table border fields (color is set in "Color of border fields" item)
  - Enum value (yes/no), default "yes"
- *Color of border fields* –
  - Setting of the color of the table border fields. (The fields are colored only if the value of "Color-highlight border fields" item is set to "yes")
  - RGB value (#RRGGBB string), default "#eeeeee"
- *Type of values* –
  - Setting of the type of frequency values in data fields.
  - Enum value, default "Absolute"
- *Antecedent (Not Antecedent, Succedent, Not Succedent) label* –
  - Value of cedent label in table
  - String value, default "antecedent" ("¬ antecedent", "succedent", "¬ succedent"). *Special value* – "***" – the real value of cedent formula will be inserted as label into the field.
- *Border field* – outer line width
  - Setting of the width of table outer border line.
  - Enum value – all possible values, default "1.5 points"
- *Border field* – inner line width

        - Setting of the width of line which separates the border fields from the data fields in table.
        - Enum value – all possible values, default "1 points"
    - *Data field* – inner line width
        - Setting of the width of line which separates the particular data fields in table.
        - Enum value – all possible values, default "no boarder"
    - *Show table description*
        - Setting whether to generate a description of table (value of description is set in item "Table description")
        - Enum value – (yes/no), default "no"
    - *Table description*
        - Setting of the string value of table description (will be generated only if the value of item "Show table description" is set to "yes")
        - String value, editable, default "Tab."
    - *First (Second) set show*
        - Only for SD-hypotheses
        - Setting whether to show contingency table also of the First (Second) set
        - Enum value (yes/no), default "yes"
    - *Table position*
        - Only for CF and SD-CF hypotheses
        - Setting of the position of table. Particular categories can be inserted into table like row (Horisontal) or like column (Vertical).
        - Enum value, default "Vertical"
    - *Type of differences*
        - Only for SD-4FT and SD-CF hypotheses and table visualizations with type "Set differences"
        - Setting of the type of difference. The values of the result contingency table are calculated like (absolute values) particular sets tables differences. The tables of particular sets may contain absolute or relative (to sum of table value) frequencies.
        - Enum value (Absolute/Relative values differences), default "Absolute values differences"

- ***Graph***

    - *Graph title* –
        - Setting of the name of the graph (Title) which will be generated upon above the graph.
        - String value, editable, default – dependent on graph type
    - *Graph type* –
        - Setting of the type of graph.
        - Enum value (possible graph types), default – dependent on graph type

- *Type of values* –
  - Setting of the type of frequency values.
  - Enum value, default "Absolute"
- *Show graph legend* –
  - Setting whether to show a graph legend
  - Enum value (yes/no), default – dependent on graph type
- *Antecedent (Not Antecedent, Succedent, Not Succedent) label* –
  - Value of cedent label in graph description
  - String value, default "antecedent" ("¬ antecedent", "succedent", "¬ succedent"). *Special value* – "***" – real value of cedent formula will be inserted as label.
- *Chart (1) (2) color* –
  - Setting of the color of the (first) (second) chart of the graph.
  - RGB value (#RRGGBB string), default "" (empty string). *Special value* – "" (empty string) – the color will be set automatically by Word.
- *Graph width (height)* –
  - Setting of the width (height) of graph – relative to width of page.
  - Float value (0-5 for height, 0-1 for width), default "0.75"
- *First (Second) set show*
  - Only for SD-hypotheses
  - Setting whether to insert into graph also the First (Second) set frequencies
  - Enum value (yes/no), default "yes"
- *Type of differences*
  - Only for SD-4FT and SD-CF hypotheses and graph visualizations with type "Set differences"
  - Setting of the type of difference. The values of the result graph are calculated like (absolute values) particular sets tables differences. The tables of particular sets may contain absolute or relative (to sum of table values) frequencies.
  - Enum value (Absolute/Relative values differences), default "Absolute values differences"

3 Active elements

3.1 Attribute

Active element ID: attribute

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Attribute name	Name of attribute
Source column	Name of source column (from which the attribute is derived)
Count of categories	Count of attribute's categories
Categories	List of categories (cat_1; …; cat_n)
Missing values	Name of categories, which represent the missing value

3.2 Category

Active element ID: category

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Attribute name	Name of category attribute
Category name	Name of category
Category type	Type of category (Enumeration | Interval | Fuzzy interval)
Frequency	Frequency of category (not available in LM metabase)
Boolean type	Indicates, whether the category is Boolean or not
Definition length	Number of the underlying values defining the category
Definition of category	The underlying value(s) defining the category

3.3 Cedent Boolean

Active element ID: bool_cedent

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Task type	Type of task (4FT | CF | KL | …)
Cedent type	Cedent type (Antecedent | Succedent | Condition | First set | Second set | Attributes | Row Attributes | Column Attributes)
Name	User name of cedent
Literal count	Number of literals
Length	Restriction of cedent's length (literals count)
literal(n) - Underlying attribute	Name of underlying attribute – for each literal of cedent
literal(n) - Category count	Count of categories of underlying attribute – for each literal of cedent
literal(n) - Missing type	Indicates, if some of the categories represent missing value – for each literal of cedent
literal(n) - Coefficient type	Type of literal's coefficient (Subset | Interval | Cut | One particular value | …) – for each literal of cedent
literal(n) - Length	Restriction of literal length – for each literal of cedent
literal(n) - Gace	Gace of literal (Positive | Negative | Both) – for each literal of cedent
literal(n) - Literal type	Type of literal (Basic | Remaining) – for each literal of cedent
literal(n) - Equivalence class	The names of the equivalence class(es) which contain this literal

3.4 Cedent CF

Active element ID: CF_cedent

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix

Task name	Name of task
Task type	Type of task (CF | SD-CF)
Cedent type	Cedent type (Attributes)
Sub-cedent count	Count of sub-cedents
Subcedent(n) - Name	Cedent name - for each sub-cedent
Subcedent(n) - Literal count	Count of cedent's literals - for each sub-cedent
Subcedent(n) - Length	Restriction of cedent length - for each sub-cedent
Subcedent(n) - Literal(k) - Underlying attribute	Name of underlying attribute - for literal of each sub-cedent
Subcedent(n) - Literal(k) - Category count	Count of underlying attribute's categories - for literal of each sub-cedent

3.5 Cedent KL

Active element ID: KL_cedent

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Task type	Type of task (KL | SD-KL)
Cedent type	Cedent type (Row attributes | Column attributes)
Sub-cedent count	Count of sub-cedents
Subcedent(n) - Name	Cedent name - for each sub-cedent
Subcedent(n) - Literal count	Count of cedent's literals - for each sub-cedent
Subcedent(n) - Length	Restriction of cedent length - for each sub-cedent
Subcedent(n) - Literal(k) - Underlying attribute	Name of underlying attribute - for literal of each sub-cedent
Subcedent(n) - Literal(k) - Category count	Count of underlying attribute's categories - for literal of each sub-cedent

3.6 Column

Active element ID: column

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Column name	Name of column
Data type	Data type of column (i.e. Integer, String, Float, Date, Boolean, …)
Primary key	Sign of primary key column
Min	Minimal value in column
Max	Maximal value in column
Avg	Average value in column

3.7 Data Matrix

Active element ID: data_matrix

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Records	Count of records
Columns Integer	Count of columns with data type “Integer”
Columns Float	Count of columns with data type “Float”
Columns String	Count of columns with data type “String”
Columns Boolean	Count of columns with data type “Boolean”
Columns Date	Count of columns with data type “Date”

3.8 Ferda DataMiner box

Active element ID: ferda_box

Supported by plugins: FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Box type	Type of box
User name	User defined name (label) of box
User hint	User defined hint (comment) to box
List of all properties	For each box property – couple "property name – property value"

3.9 Hypothesis 4FT

Active element ID: hyp_4ft

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
a	A–frequency in four fold table
b	B–frequency in four fold table
c	C–frequency in four fold table
d	D–frequency in four fold table
Confidence: a/(a+b)	4FT quantifier
D-Confidence: a/(a+b+c)	4FT quantifier
E-Confidence: (a+d)/(a+b+c+d)	4FT quantifier
Support: a/(a+b+c+d)	4FT quantifier
Completeness: a/(a+c)	4FT quantifier
Average difference: a(a+b+c+d)/((a+b)(a+c))- 1	4FT quantifier
Lower bound implication	4FT quantifier
Upper bound implication	4FT quantifier
Lower bound double implication	4FT quantifier
Upper bound double implication	4FT quantifier
Lower bound equivalence	4FT quantifier
Upper bound equivalence	4FT quantifier
Fisher test	4FT quantifier

Chi-square test	4FT quantifier
Antecedent	Antecedent – Boolean cedent formula
Succedent	Succedent - Boolean cedent formula
Condition	Condition - Boolean cedent formula

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular cedents of hypothesis (Antecedent, Succedent, Condition).
- ***Contingency Table***
  - This visualization creates a contingency (four-fold) table of the hypothesis. This table contains frequencies <a,b,c,d>.
- ***Graph***
  - This visualization creates a graph of contingency (four-fold) table of hypothesis. This graph contains frequencies <a,b,c,d>.

For more information about setting up the particular visualization properties, see the chapter 2.

3.10 Hypothesis 4FT AR2NL

Active element ID: hyp_4ft_ar2nl

Supported by plugins: LMplugin

List of attributes:

Attribute	Description
Id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
A	A–frequency in four fold table
B	B–frequency in four fold table
C	C–frequency in four fold table
D	D–frequency in four fold table
Confidence: a/(a+b)	4FT quantifier
D-Confidence: a/(a+b+c)	4FT quantifier
E-Confidence: (a+d)/(a+b+c+d)	4FT quantifier
Support: a/(a+b+c+d)	4FT quantifier

Completeness: a/(a+c)	4FT quantifier
Average difference: a(a+b+c+d)/((a+b)(a+c))- 1	4FT quantifier
Lower bound implication	4FT quantifier
Upper bound implication	4FT quantifier
Lower bound double implication	4FT quantifier
Upper bound double implication	4FT quantifier
Lower bound equivalence	4FT quantifier
Upper bound equivalence	4FT quantifier
Fisher test	4FT quantifier
Chi-square test	4FT quantifier
Antecedent	Antecedent - Boolean cedent formula
Succedent	Succedent - Boolean cedent formula
Condition	Condition - Boolean cedent formula
Sentences count	Count of sentences gained from AR2NL module for given hypothesis
Sentence n	List of all sentences gained from AR2NL module

3.11 Hypothesis CF

Active element ID: hyp_cf

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Sum	CF quantifier
Min	CF quantifier
Max	CF quantifier
Variation ratio : 1-f(modal)	CF quantifier
Nominal variation : suma(f(i)*(1-f(i))) * K/(K-1)	CF quantifier
Discrete ordinary variation : 2*suma(F(i)*(1-F(i))* 2/(K-1)	CF quantifier
Arithmetic average of cardinal values	CF quantifier
Geometric average of cardinal values	CF quantifier
Variance of cardinal values	CF quantifier
Standard deviation of cardinal values	CF quantifier

Skewness of cardinal values	CF quantifier
Asymetry coeficient of cardinal values	CF quantifier
Attributes	Attributes – name of categorical cedent
Condition	Condition - Boolean cedent formula
Tab(category n)	For each category from Attributes – frequency of category in CF table

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular (Boolean and categorical) cedents of hypothesis (Attributes, Condition).
- ***Contingency Table***
  - This visualization creates a table of the frequencies of particular Attributes categories.
- ***Graph***
  - This visualization creates a graph of the frequencies of particular Attributes categories.

For more information about setting up the particular visualization properties, see the chapter 2.

3.12 Hypothesis KL

Active element ID: hyp_kl

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
Id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Sum	KL quantifier
Min	KL quantifier
Max	KL quantifier
ChiSq : Chi-square test	KL quantifier
FncS : function-type KL-Quantifier (sum)	KL quantifier

FncR : function-type KL-Quantifier (row)	KL quantifier
Unconditional entropy H(C)	KL quantifier
Unconditional entropy H(R)	KL quantifier
Conditional entropy H(C|R)	KL quantifier
Mutual information MI(C,R) normalized	KL quantifier
Asymetric information coefficient AIC(R,C)	KL quantifier
Kendall coefficient	KL quantifier
Row attributes	Row attributes – name of categorical cedent (rows of KL table)
Column attributes	Column attributes – name of categorical cedent (columns of KL table)
Condition	Condition - Boolean cedent formula
Tab1(row_category K; column_category L)	For each couple – "category of Row attributes – category of Column attributes" – frequency of categories couple in KL table

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular (Boolean and categorical) cedents of hypothesis (Row attributes, Column attributes Condition).
- ***Contingency Table***
  - This visualization creates a contingency table of the frequencies of particular Row and Column Attributes categories.
- ***Graph***
  - This visualization creates a graph of contingency table which contains the frequencies of particular Row and Column Attributes categories.

For more information about setting up the particular visualization properties, see the chapter 2.

3.13 Hypothesis SD-4FT

Active element ID: hyp_sd4ft

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
Id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
A	A–frequency in four fold table (First set)
B	B–frequency in four fold table (First set)
C	C–frequency in four fold table (First set)
D	D–frequency in four fold table (First set)
E	E–frequency in four fold table (Second set)
F	F–frequency in four fold table (Second set)
G	G–frequency in four fold table (Second set)
H	H–frequency in four fold table (Second set)
Confidence 1: a/(a+b)	SD-4FT quantifier
D-Confidence 1: a/(a+b+c)	SD-4FT quantifier
E-Confidence 1: (a+d)/(a+b+c+d)	SD-4FT quantifier
Support 1: a/(a+b+c+d)	SD-4FT quantifier
Completeness 1: a/(a+c)	SD-4FT quantifier
Average difference 1: a(a+b+c+d)/((a+b)(a+c))- 1	SD-4FT quantifier
Lower bound implication 1	SD-4FT quantifier
Upper bound implication 1	SD-4FT quantifier
Lower bound double implication 1	SD-4FT quantifier
Upper bound double implication 1	SD-4FT quantifier
Lower bound equivalence 1	SD-4FT quantifier
Upper bound equivalence 1	SD-4FT quantifier
Fisher test 1	SD-4FT quantifier
Chi-square test 1	SD-4FT quantifier
Confidence 2: e/(e+f)	SD-4FT quantifier
D-Confidence 2: e/(e+f+g)	SD-4FT quantifier
E-Confidence 2: (e+h)/(e+f+g+h)	SD-4FT quantifier
Support 2: e/(e+f+g+h)	SD-4FT quantifier
Completeness 2: e/(e+g)	SD-4FT quantifier
Average difference 2: e(e+f+g+h)/((e+f)(e+g))- 1	SD-4FT quantifier
Lower bound implication 2	SD-4FT quantifier
Upper bound implication 2	SD-4FT quantifier
Lower bound double implication 2	SD-4FT quantifier
Upper bound double implication 2	SD-4FT quantifier

Lower bound equivalence 2	SD-4FT quantifier
Upper bound equivalence 2	SD-4FT quantifier
Fisher test 2	SD-4FT quantifier
Chi-square test 2	SD-4FT quantifier
D%-Sum (Sum of differences of relative frequencies between sets)	SD-4FT quantifier
Df-Conf (Difference of values of Confidence)	SD-4FT quantifier
Df-DFUI (Difference of values of D-Confidence)	SD-4FT quantifier
Df-FUE (Difference of values of E-Confidence)	SD-4FT quantifier
Df-Avg (Difference of values of Average Difference)	SD-4FT quantifier
Antecedent	Antecedent - Boolean cedent formula
Succedent	Succedent - Boolean cedent formula
Condition	Condition - Boolean cedent formula
First set	First set - Boolean cedent formula
Second set	Second set - Boolean cedent formula

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular cedents of hypothesis (Antecedent, Succedent, Condition, First set, Second set).
- ***Contingency Table***
  - This visualization creates a couple of contingency (four-fold) tables (for the first and the second set). The table of the first set contains frequencies <a,b,c,d>, the table of the second set contains frequencies <e,f,g,h>.
- ***Contingency Table – Set Comparison***
  - This visualization creates one contingency (four-fold) table (for the first and the second set together). The table contains frequencies <a,b,c,d> and <e,f,g,h>.
- ***Contingency Table – Set Differences***
  - This visualization creates one contingency (four-fold) table (of differences between first and second set). The table contains frequencies <|a-e|,|b-f|,|c-g|,|d-h|>.
- ***Graph***
  - This visualization creates a graph of contingency (four-fold) tables (first and second set). This graph contains frequencies <a,b,c,d> and <e,f,g,h>.
- ***Graph – Set Comparison***
  - This visualization creates a graph of contingency (four-fold) tables (first and second set) together. This graph contains frequencies <a,b,c,d> and <e,f,g,h>.
- ***Graph – Set Differences***

- This visualization creates a graph of contingency (four-fold) table (of differences between first and second set). This graph contains frequencies <|a-e|,|b-f|,|c-g|,|d-h|>.

For more information about setting up the particular visualization properties, see the chapter 2.

3.14 Hypothesis SD-CF

Active element ID: hyp_sdcf

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
Id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Sum 1	SD-CF quantifier
Min 1	SD-CF quantifier
Max 1	SD-CF quantifier
Variation ratio 1 : 1-f(modal)	SD-CF quantifier
Nominal variation 1 : suma(f(i)*(1-f(i))) * K/(K-1)	SD-CF quantifier
Discrete ordinary variation 1 : 2*suma(F(i)*(1-F(i))* 2/(K-1)	SD-CF quantifier
Arithmetic average of cardinal values1	SD-CF quantifier
Geometric average of cardinal values 1	SD-CF quantifier
Variance of cardinal values 1	SD-CF quantifier
Standard deviation of cardinal values 1	SD-CF quantifier
Skewness of cardinal values 1	SD-CF quantifier
Asymetry coeficient of cardinal values 1	SD-CF quantifier
Sum 2	SD-CF quantifier
Min 2	SD-CF quantifier
Max 2	SD-CF quantifier
Variation ratio 2 : 1-f(modal)	SD-CF quantifier
Nominal variation 2 : suma(f(i)*(1-f(i))) * K/(K-1)	SD-CF quantifier
Discrete ordinary variation 2 :	SD-CF quantifier

2*suma(F(i)*(1-F(i))* 2/(K-1)	
Arithmetic average of cardinal values 2	SD-CF quantifier
Geometric average of cardinal values 2	SD-CF quantifier
Variance of cardinal values 2	SD-CF quantifier
Standard deviation of cardinal values 2	SD-CF quantifier
Skewness of cardinal values 2	SD-CF quantifier
Asymetry coeficient of cardinal values 2	SD-CF quantifier
DA-Sum : Sum of absolute differences of all frequencies	SD-CF quantifier
DA-Min : Minimal absolute difference of corresponding frequencies	SD-CF quantifier
DA-Max : Maximal absolute difference of correspondint frequencies	SD-CF quantifier
D%-Sum : Sum of differences of relative frequencies	SD-CF quantifier
D%-Min : Minimal difference of relative frequencies	SD-CF quantifier
D%-Max : Maximal difference of relative frequencies	SD-CF quantifier
Attributes	Attributes – name of categorical cedent
Condition	Condition - Boolean cedent formula
First set	First set - Boolean cedent formula
Second set	Second set - Boolean cedent formula
Tab1(category n)	For each category from Attributes – frequency of category in CF table of First set
Tab2(category n)	For each category from Attributes – frequency of category in CF table of Second set

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular (Boolean and categorical) cedents of hypothesis (Attributes, Condition, First set, Second set).
- ***Contingency Table***
  - This visualization creates a table of the frequencies of particular Attributes categories (for the first and second set).
- ***Contingency Table – Set Differences***
  - This visualization creates a table of the differences of frequencies (between the first and second set) of particular Attributes categories.

- ***Graph***
  - This visualization creates a graph of the frequencies of particular Attributes categories (for the first and second set).
- ***Graph – Set Differences***

- This visualization creates a graph of differences of frequencies (between the first and second set) of particular Attributes categories.

For more information about setting up the particular visualization properties, see the chapter 2.

3.15 Hypothesis SD-KL

Active element ID: hyp_sdkl

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
sum1	SD-KL quantifier
min1	SD-KL quantifier
max1	SD-KL quantifier
ChiSq : Chi-square test 1	SD-KL quantifier
FncS : function-type KL-Quantifier (sum) 1	SD-KL quantifier
FncR : function-type KL-Quantifier (row) 1	SD-KL quantifier
Unconditional entropy H(C) 1	SD-KL quantifier
Unconditional entropy H(R) 1	SD-KL quantifier
Conditional entropy H(C|R) 1	SD-KL quantifier
Mutual information MI(C,R) normalized 1	SD-KL quantifier
Asymetric information coefficient AIC(R,C) 1	SD-KL quantifier
Kendall coefficient 1	SD-KL quantifier
sum2	SD-KL quantifier
min2	SD-KL quantifier
max2	SD-KL quantifier
ChiSq : Chi-square test 2	SD-KL quantifier
FncS : function-type KL-Quantifier (sum) 2	SD-KL quantifier

FncR : function-type KL-Quantifier (row) 2	SD-KL quantifier
Unconditional entropy H(C) 2	SD-KL quantifier
Unconditional entropy H(R) 2	SD-KL quantifier
Conditional entropy H(C|R) 2	SD-KL quantifier
Mutual information MI(C,R) normalized 2	SD-KL quantifier
Asymetric information coefficient AIC(R,C) 2	SD-KL quantifier
Kendall coefficient 2	SD-KL quantifier
DA-Sum : Sum of absolute differences of all frequencies	SD-KL quantifier
DA-Min : Minimal absolute difference of corresponding frequencies	SD-KL quantifier
DA-Max : Maximal absolute difference of correspondint frequencies	SD-KL quantifier
D%-Sum : Sum of differences of relative frequencies	SD-KL quantifier
D%-Min : Minimal difference of relative frequencies	SD-KL quantifier
D%-Max : Maximal difference of relative frequencies	SD-KL quantifier
Row attributes	Row attributes – name of categorical cedent (rows of KL table)
Column attributes	Column attributes – name of categorical cedent (columns of KL table)
Condition	Condition - Boolean cedent formula
First set	First set - Boolean cedent formula
Second set	Second set - Boolean cedent formula
Tab1(row_category K; column_category L)	For each couple – "category of Row attributes – category of Column attributes" – frequency of categories couple in KL table of First set
Tab2(row_category K; column_category L)	For each couple – "category of Row attributes – category of Column attributes" – frequency of categories couple in KL table of Second set

Visualizations:

- ***Header And Cedents***
  - This visualization includes a new chapter into document and writes values of particular (Boolean and categorical) cedents of hypothesis (Row attributes, Column attributes, Condition, First set, Second set).
- ***Contingency Table***

  - This visualization creates a couple of contingency tables (for the first and second set) of the frequencies of particular Row and Column Attributes categories.
- ***Graph***
  - This visualization creates a graph of contingency tables (of the first and second set) which contains the frequencies of particular Row and Column Attributes categories.

For more information about setting up the particular visualization properties, see the chapter 2.

3.16 Quantifier

Active element ID: quantifier

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Task type	Type of task (4FT | CF | KL | …)
Quantifier name	Name of quantifier
Quantifier type	Type of (i.e. Functional, Aggregation, …)
List of properties	For each property of given quantifier (i.e. parameter, relation type, …) couple – "name of property - value"

3.17 Task

Active element ID: task

Supported by plugins: LMplugin, FEplugin

List of attributes:

Attribute	Description
id	ID of active element occurrence
Database	Database name
Data matrix	Name of data matrix
Task name	Name of task
Task type	Type of task (4FT | CF | KL | …)
State	State of task (i.e. DidNotStart, Running, Completed, …)
Total time	Time of hypotheses generating process
Start time	Time, when the generating process started
Hypotheses count	Number of verified hypotheses
Number of verifications	Number of verification performed during generating